

**ANNUAL REPORT**  
**To the**  
**GOVERNOR and GENERAL ASSEMBLY**  
**On the**  
**SOLID WASTE MANAGEMENT ACT OF 1991**  
**Fiscal Year 2010-2011**



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Solid Waste Assistance Programs  
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## **Introduction**

The Department of Environment and Conservation (TDEC) Division of Solid Waste Management (SWM) and the Office of Environmental Assistance (OEA) have collaborated to produce the 2010-2011 Tennessee Solid Waste Management Annual Report. The Solid Waste Management Act of 1991 requires that an annual report on Tennessee's Solid Waste Management System (SWMS) be prepared and submitted to the Governor and General Assembly as directed by Tennessee Code Annotated (TCA) §68-211-873.

Through the Solid Waste Management System (SWMS), TDEC acts as a facilitator for waste reduction by collaborating with county and municipal governments, industry and contract agencies. The goal is to coordinate the activities of these groups to maintain adequate health and safety standards, protect the environment through facility design and location, and maximize the utilization of resources that would otherwise be disposed at solid waste facilities. Tennessee's SWMS is intended to further the protection of public health and enhance the quality of the environment.

## **Overview & History**

Concern for solid waste issues has been prevalent since the United States Congress enacted the Solid Waste Disposal Act of 1965. During the 1980s, public interest in solid waste management rose to new levels because of shrinking landfill capacity, increasing disposal costs, and opposition to the siting of new landfills. To address this, the Federal government enacted the Resource Conservation and Recovery Act. Subtitle D of this law provides regulatory exemptions and other incentives that encourage the reuse of recoverable material (United States Environmental Protection Agency, Office of Solid Waste, Communications, Information, & Resources Management Division ([US EPA OSW CIRMD], 1998, p. II-1).

Coincidentally, in the late 1980s, local governments in Tennessee were faced with the expensive and often controversial challenge of finding environmentally safe disposal capacity for municipal solid waste. Lawmakers, public administrators, technical assistance providers, and industry collaborated to find a solution. The consensus was that long-range planning was essential for local governments to meet State and Federal mandates regarding modern, safe municipal solid waste disposal. The Act, a direct result of these discussions, placed as one of its major roles the development of tools to help local governments, industry, and the public make better choices in dealing with solid waste issues ([US EPA OSW CIRMD], 1998, p. II-2).

By 1995, the Environmental Protection Agency (EPA) had developed an integrated, hierarchical approach to waste management ([US EPA OSW CIRMD], 1998, p. II-3). This was known as the "Integrated Solid Waste Management System." To mirror the waste management system established by EPA, TDEC developed its own SWMS. Tennessee's SWMS is intended to

facilitate regulatory activities and enforcement by TDEC. The Act challenged each Region to reduce the amount of solid waste disposed in Class I landfills and incinerators by 25%. Originally, the Act set 1989 as the base year for calculation of the 25% solid waste reduction goal and December 31, 1995, was set as the date to meet the reduction goal (Solid Waste Management Act, Plan for Disposal Capacity & Waste Reduction, 1991).

The Act set forth specific provisions to further this waste reduction goal. One provision was the establishment of the Solid Waste Management Fund (the Fund). The Fund was established to provide financial support in addressing waste avoidance, waste reduction, recycling, composting, and household hazardous waste disposal. As identified by the General Assembly, education, technical assistance, and economic incentives are the tools to be used in support of this mission (Solid Waste Management Act, Solid Waste Management Fund, 1991).

Monies for the Fund are generated from a \$0.90 surcharge assessed on every ton of municipal solid waste disposed in Tennessee's Class I landfills or incinerators. Amendments in 2007 extended the surcharge and increased it from the previous rate of \$0.75 cents per ton to the existing \$0.90 per ton. In addition to the disposal surcharge going to the Fund, retail tire dealers collect a pre-disposal fee for each new tire sold in Tennessee. Amendments in 2007 increased this amount from \$1.00 per tire to the current rate of \$1.35. Tire dealers continue to keep 10 cents per tire to cover administrative costs. The remaining \$1.25 is remitted to the Department of Revenue to be deposited into the Fund (Solid Waste Management Act, Expenditure of Revenues, 1991).

The Act was amended in 1999 and established December 31, 2003, as the date for Municipal Solid Waste Planning Regions (solid waste planning entities) to meet the 25% per capita (by weight) reduction and diversion goal for municipal solid waste (MSW) disposed in Class I landfills or incinerators. The 1999 amendment established 1995 as the new base year (Solid Waste Management Act, Solid Waste Reduction & Diversion Goal, 1991). Additionally, the 1999 amendment allowed for the economic growth of a region to be used as one factor in determining compliance with the 2003 goal (Solid Waste Management Act, Basis for Goal, 1991). Each Region that did not meet the December 31, 2003 deadline was required to have its solid waste program qualitatively assessed to determine if a "good faith" effort was made toward achieving the goal. Rules specifying the methodology to be used for the qualitative assessment of regional solid waste programs were fully promulgated August 6, 2006. The first qualitative assessments were completed in the winter of FY 2008-09.

Amendments to the Act in 2007 deleted the December 31, 2003 deadline for meeting the 25% waste reduction and diversion goal making it an on-going goal. These amendments added a requirement for the regional solid waste plans to include a management plan for disaster debris; clarified sanctions for noncompliance with submittals of regional solid waste plans and updates; added language allowing TDEC to award grants for establishment of permanent household hazardous waste collection sites to municipalities or counties with large populations or high

participation at the mobile events; added language that provide for grants to counties or municipalities that own and previously operated old closed landfills without composite liners that are determined to be causing harm to the environment through groundwater contamination; allowed for the Fund to be used for proper disposal of hazardous waste from K-12 schools; increased the tipping fee surcharge as noted previously; and allowed for a thorough review of the waste reduction and diversion goal to consider incentives and disincentives to promote recycling and waste reduction. TDEC requested that the Solid Waste Advisory Committee (SWAC) review the State's waste reduction goal and make recommendations for updating the goal and identifying waste reduction practices that the State should implement. In response to this request, the SWAC organized a waste reduction task force. A chronology of the activities of this collaborative group is included in the 'Waste Reduction Task Force' Section of this report.

### **Waste Reduction Task Force**

In September 2007, the Solid Waste Advisory Committee, acting on amendments to the Solid Waste Management Act directing a review of the State's waste reduction and diversion goal, established the twenty-three member Waste Reduction Task Force (WRTF) comprised of solid waste professionals from across the state. Members of this task force included representatives of local governments (solid waste directors, county and municipal mayors, aldermen from rural, urban, and large cities,) private industry representatives, and the environmental and energy sectors. The WRTF was supported by a large group of technical assistance providers including TDEC, the University of Tennessee's County Technical Assistance Service (CTAS) and the Center for Industrial Services (CIS), Recycling Marketing Cooperative for Tennessee, and several development districts. Various speakers and organizations were brought in to support and inform the WRTF during their discussion on the many topics reviewed. A professional facilitator was hired to lead the discussions and to ensure that the objectives of the task force were met. Members of the WRTF were organized into four work groups to allow a closer look at the different topics and to make recommendations on those to the entire task force. An eighty (80%) percent consensus of the WRTF was established for moving recommendations forward to the Solid Waste Advisory Committee.

The WRTF met for the first time on September 27, 2007, organizing into the four workgroups and establishing that; any recommendations from those groups must receive approval from 80% of the entire task force membership to be considered by the SWAC. The WRTF met nine times, with a total of twenty-two meetings of the individual work groups. A separate work group consisting of the leaders of the regular work groups met in May of 2008 to consolidate their recommendations for presentation to the full task force later that month.

The WRTF concluded its work in late May 2008 where it recommended waste reduction reforms that would bring the state in line with national trends and to address the continued increasing disposal rates across the state. The recommended reforms included a new waste reduction and recycling goal making everyone responsible for waste reduction, a series of landfill bans,

redefining of some current diversion methods as disposal, infrastructure improvements and monetary changes to tipping fees.

On June 16, 2008, the SWAC met to hear the task force's recommendations and discuss any proposed amendments. The SWAC met again on July 29, 2008 to re-hear the recommendations and refer potential rule changes to the Department. These waste reduction and recycling concepts were approved by the SWAC, with a few modifications, and recommended to the Department. The Department drafted rules incorporating the recommendations. The draft rules were presented to the Solid Waste Disposal Control Board for authorization to proceed with the rule making process. Based on comments from the Solid Waste Disposal Control Board, the draft rules were modified after additional review and consideration of the Solid Waste Advisory Committee. One major change involved removal of the requirements for landfill bans.

On August 5, 2008, Department staff advised the Solid Waste Disposal Control Board (SWDCB) that the draft rule changes would be presented to go to public hearing at the next SWDCB meeting scheduled for September 30, 2008. At that September 30th meeting, the Department formally presented the draft rule language for the SWDCB's consideration for public hearing. The draft rules were withdrawn after the SWDCB members indicated that they had not had time to review the language prior to presentation.

The SWDCB authorized the Department to present draft rules at a public hearing on September 1, 2009 with the closing date for comments from the general public being September 30, 2009. Based on these public comments a revised rule package was presented to the SWDCB in February 2010. Since that time, the Department has been in discussions with the SWDCB to resolve concerns to assure that rules promulgated were comprehensive and yet not over burdensome to local governments, business and industry charged with implementation.

The revised draft rule language was scheduled for review by the SWDCB at its meeting on August 3, 2010. However, at that time, the SWDCB recommended further study of the draft rule language with possible rescheduling in late 2011.

Another bill approved during the 2007 legislative session, directed the Department to enter into a contract with Tennessee State University to perform a study of the characterization of wastes going into Class I landfills and identifying methods of reducing those wastes. This project was to be undertaken with the final report to coincide with decisions from the WRTF. The waste characterization study was finalized on December 15, 2008. In this study, the impacts of potential future bans of various recyclable materials from landfills are calculated. The report also provides a breakdown of Tennessee's disposal from samplings at two landfills and extrapolates that data into a broad picture of disposal trends statewide. This study, with additional data, will aid in the development of better waste management strategies in Tennessee.

## **Solid Waste Management System**

The SWMS is a multi-pronged approach to better management of Tennessee's solid waste, which includes technical assistance, education, and diversion/resource recovery. These activities are advanced through the collaborative efforts of TDEC, educational institutions, private organizations, and agencies at all levels of government.

To assist the implementation of the SWMS, the Act made each county a Solid Waste Planning District (Solid Waste Management Act, Municipal Solid Waste Planning District, 1991). The Districts, in turn, were allowed to collaborate with local municipalities and neighboring counties to form MSW Regions (Solid Waste Management Act, Municipal Solid Waste Regions, 1991). The Act requires each MSW Region to develop a 10-year disposal plan for their solid waste, provide for solid waste education to its population, and plan to reduce the amount of waste it generates by 25% (Solid Waste Management Act, Municipal Solid Waste Region Plans, 1991).

Along with the 10-year solid waste disposal plans, regions were required to prepare 5-year updates and to submit Annual Progress Reports (APR) that project foreseeable solid waste disposal requirements and proposed solutions. Sixty-eight regional planning boards have the responsibility for developing the plans and for reporting this information to TDEC. The legislature amended the Act in 2004 to allow the APR to be used in lieu of the regional 5-year capacity update. Each region now uses its APR to project changes in solid waste generation and to modify its 10-year plan (Solid Waste Management Act, Municipal Solid Waste Region Plans, 1991).

To implement the SWMS, TDEC disperses monies from the Fund in the form of grants and contracted services. Grants are given to local governments, educational institutions, MSW Regions, and development districts to aid in solid waste planning. Grants are also available to county and local governments to assist in solid waste facility upgrades, purchase of recycling equipment, recycling of waste tires and collection of household hazardous waste at permanent facilities.

## **References:**

- Solid Waste Management Act of 1991 [SWMA], Basis for Goal. §68-211-861(c). (LexisNexis 2001).*
- SWMA, Expenditure of revenues. §68-211-835(d). (LexisNexis 2001).*
- SWMA, Municipal solid waste planning district. §68-211-811(a). (LexisNexis 2001).*
- SWMA, Municipal solid waste region plans. §68-211-814(a). (LexisNexis 2001).*
- SWMA, Municipal solid waste regions. §68-211-813(a). (LexisNexis 2001).*
- SWMA, Plan for disposal capacity & waste reduction. §68-211-813(c). (LexisNexis 2001).*
- SWMA, Solid waste management fund. §68-211-821(a). (LexisNexis 2001).*
- SWMA, Solid waste reduction & diversion goal. §68-211-861(a). (LexisNexis 2001).*
- United States Environmental Protection Agency [US EPA], Office of Solid Waste, Communications, Information, & Resources Management Division. (1998).*

## **Class I Disposal Per Person Per Year By County**

The Solid Waste Management Act of 1991 required MSW Regions to reduce the amount of waste placed into Class I landfills by 25% from a base year measurement taken in 1995. Tennesseans disposed of 6,921,007 tons of solid waste in Class I landfills in 1995, equal to 1.32 tons per person per year. In 2010, Tennesseans generated 10,704,020 tons of solid waste with 5,696,724 tons disposed of in Class I landfills and 5,007,296 tons recycled, reused, or diverted to other disposal facilities. This equates to a disposal rate of 0.90 tons per person. Using the 1995 base year, the per capita waste reduction and diversion rate for 2010 is 33%.

Regions that do not meet the solid waste reduction and diversion goal have their solid waste programs qualitatively assessed to determine if a “good faith” effort was made toward achieving the goal. In late 2006, TDEC adopted rules establishing a method for assessing those regions not meeting the goal. Qualitative assessments were completed on four regions for 2010, with recommendations for program improvements offered to each of these regions.

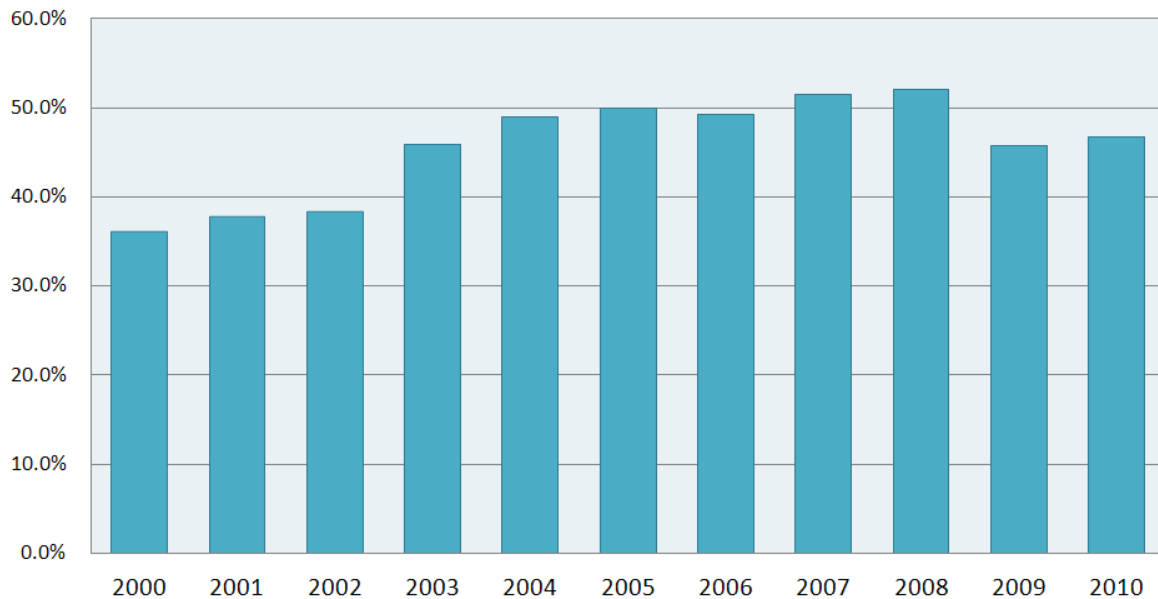
At the end of FY 2010-2011, there were 34 operating, permitted Class I (sanitary) landfills in Tennessee; 19 were publicly owned. There were 67 operating, permitted Class III and IV (construction & demolition) landfills. Approximately 1,641,264 tons of material was diverted away from Class I to Class III and IV landfills in CY 2010 according to the Regions’ APRs. A total of 513 operating, permitted Convenience Centers are located throughout the state, most of which offer some level of recycling in addition to residential waste collection.

Currently there are approximately 130 known county sponsored unmanned municipal solid waste collection sites across Tennessee. These are most commonly referred to as “green boxes” and usually take the form of one or more open top dumpsters located in underserved remote areas of the counties. About 70% of these locations are located in Haywood County; however, green boxes are also known to exist in Anderson, Clay, Campbell, DeKalb, Lake, Perry, and Fentress Counties. By law, only those locations that were established prior to January 1, 1996, may continue in service.

Green boxes are of environmental concern as there is often no monitoring of the substances that go into these containers before the material is transported to landfills. The presence of these unmanned and unmonitored containers makes promotion of recycling and waste reduction impossible. It is the opinion of the Department that the practice of utilizing green boxes as a method of waste collection be phased out in the coming years.

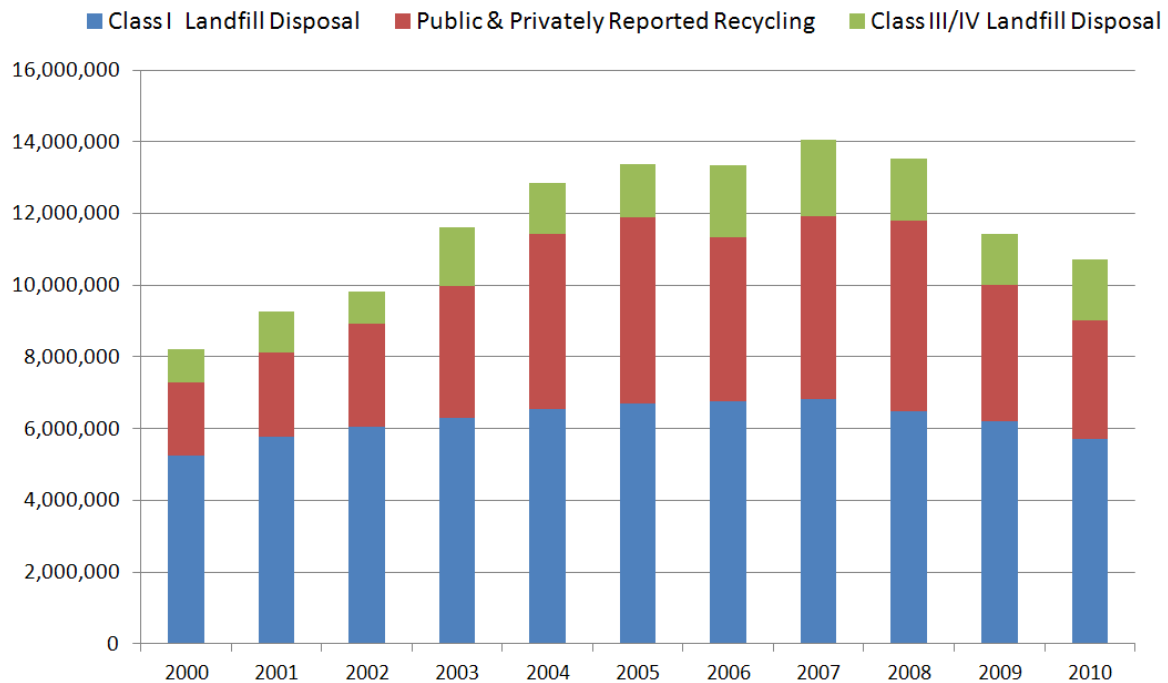
The following charts and tables summarize Tennessee’s waste stream from 2010-2011:

## Percentage of Waste Stream Diverted from Class I Landfills



Source: TDEC Municipal Solid Waste Planning Regions' Annual Progress Reports 2000-2010

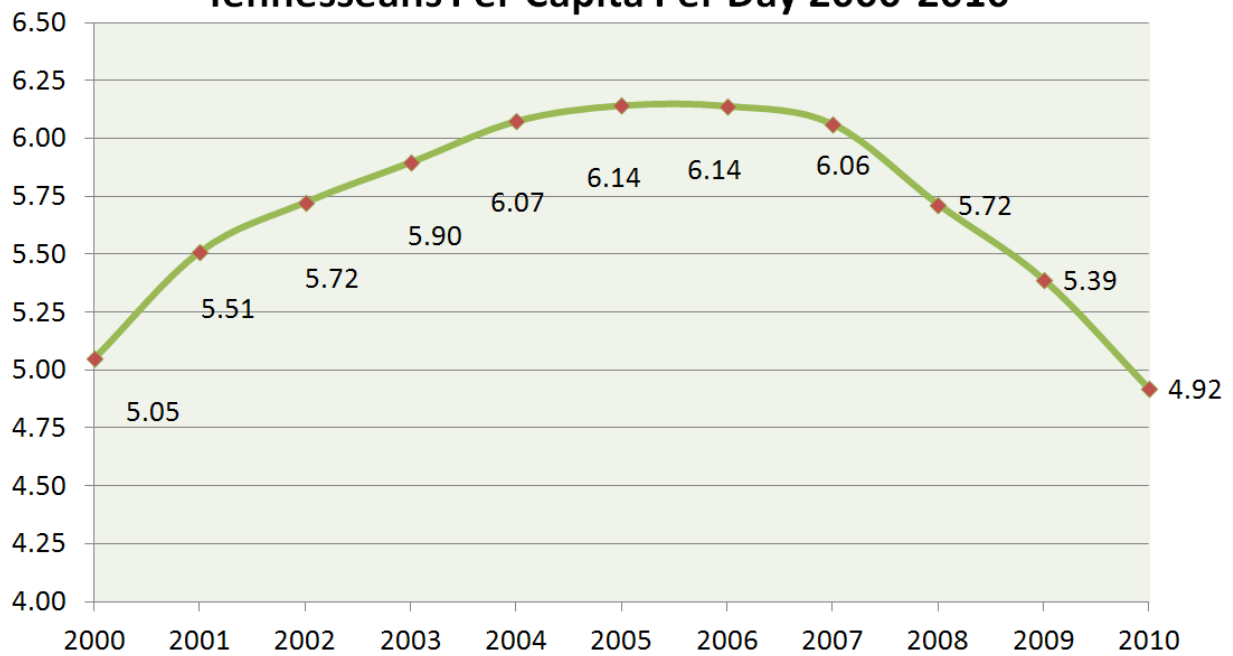
## 2000-2010 Total Generation in Tons



Source: TDEC Municipal Solid Waste Planning Regions' Annual Progress Reports 2000-2010



## Pounds of Waste Placed in Class I Landfills by Tennesseans Per Capita Per Day 2000-2010



Source: TDEC Municipal Solid Waste Planning Regions' Annual Progress Reports 2000-2010

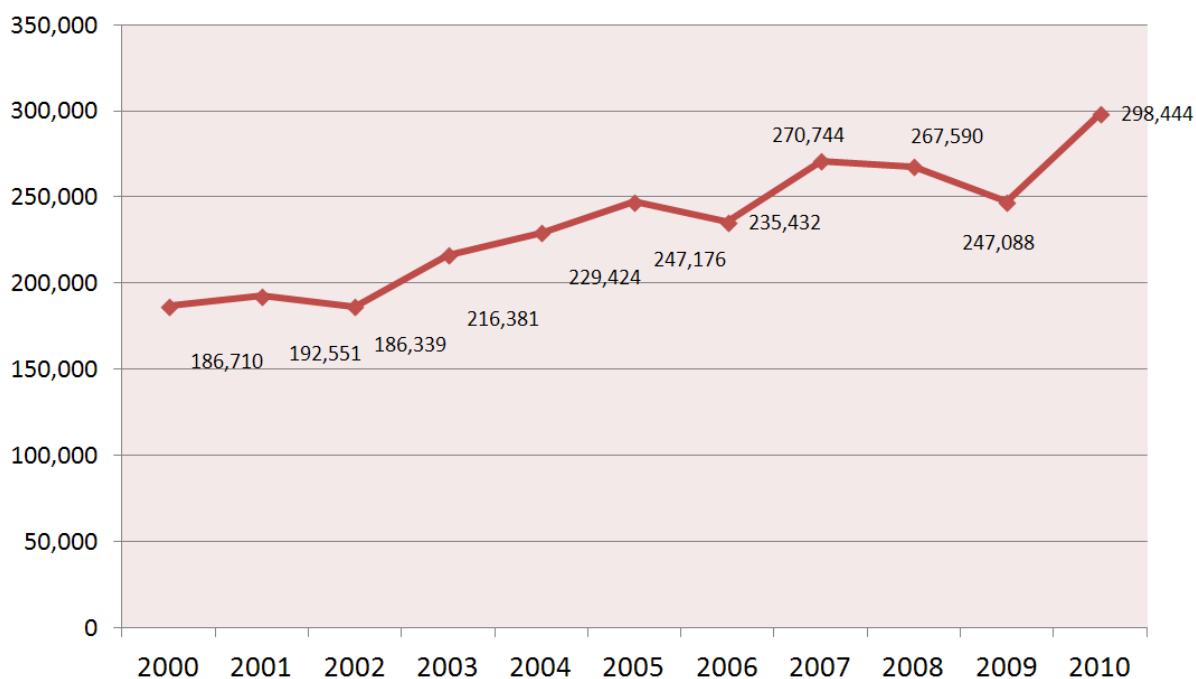
## Waste Diversion

The Solid Waste Management Act of 1991 established a goal for diverting waste from Class I landfills. There are many ways in which materials might be diverted and beneficially used; however, publicly hosted recycling programs of post-consumer goods are most often utilized for benchmarking of programs and for national comparisons.

A region's waste diversion/reduction efforts are recorded on County Recycling Reports (CRR), aggregated, and reported to the Department by way of the APR. These CRRs are categorized as either public or private. For the sake of benchmarking, the following charts outline the post-consumer recycling efforts across the state for paper, metal, glass, and plastic.

Paper, metal, glass, and plastic recycling is offered to residents and businesses throughout the state through various public collection programs operated or contracted through municipal or county governments.

### Publicly Collected Paper, Metal, Plastic and Glass Recycled (in tons)



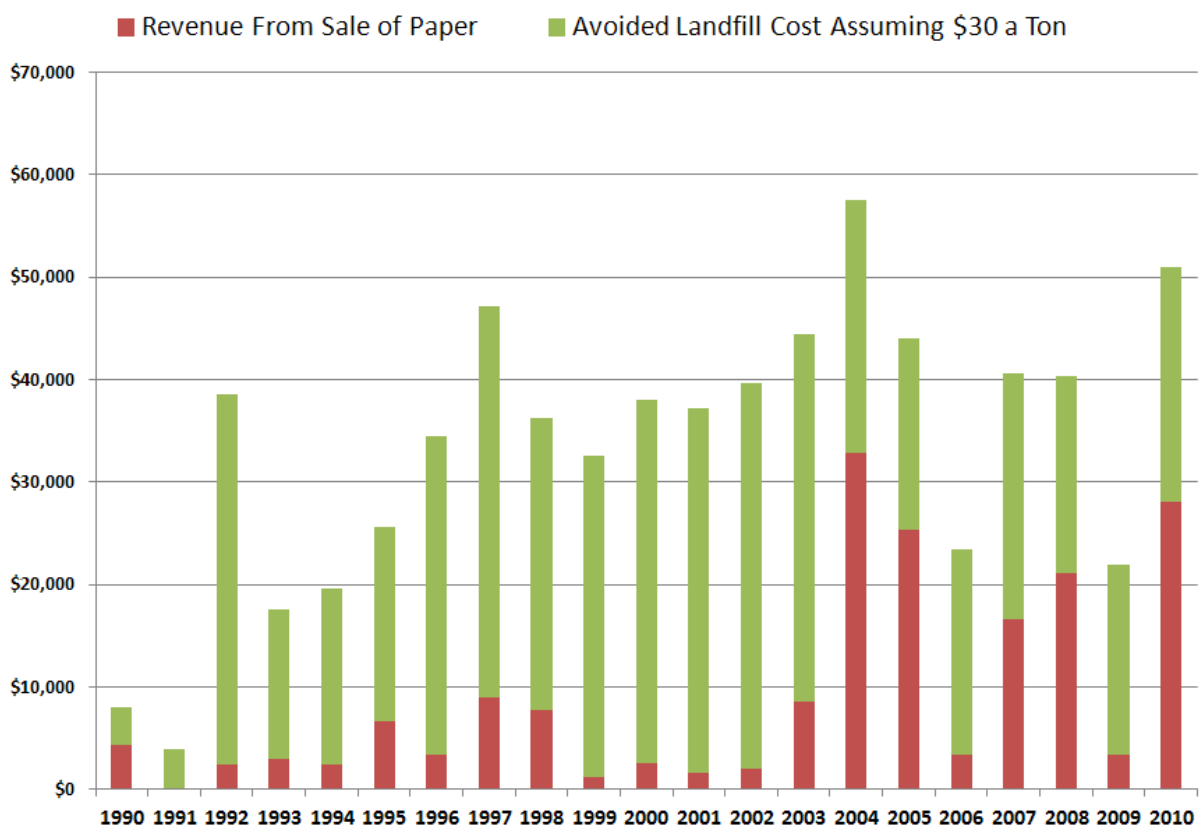
Source: TDEC Municipal Solid Waste Planning Regions' Annual Progress Reports 2000-2010

## OFFICE OF ENVIRONMENTAL ASSISTANCE

### The State Employees Recycling Program

The State Employees Recycling Program (SERP) administered by the Office of Environmental Assistance (OEA), includes more than 24,500 state employees in 114 facilities.

From January 1, 1990 to December 31, 2010, state employees recycled 17,199 tons of mixed office paper. This produced revenue of \$177,553.07 for the state, while avoiding \$515,970.00 in landfill disposal costs. These revenues are deposited in the Solid Waste Management Fund to purchase new equipment for the program.



Source: Office of Environmental Assistance State Employee Recycling Program

Fiscal Year 2010-11 state employees recycled 761.82 tons of mixed office paper. This produced revenue of \$28,072.29 for the state, while avoiding \$22,854.60 in landfill disposal costs.

The SERP continually seeks ways to increase participation and tonnage. Four new facilities have recently been added to the program. Additionally, OEA maintains a demonstration office

with collection points for Rechargeable Batteries, Cell Phones, Eyeglasses, Coat Hangers, Holiday Greeting Cards, Inkjet Cartridges, Bottle and Can Plastic Ring Holders, Fluorescent Bulbs, Paperback Books, Coupons, Name Tag Holders, Plastic Peanuts, and Plastic Bottle Caps.

### **State Facilities Recycling Program**

In addition to recycling at State offices provided by the State Employee Recycling Program, waste reduction and recycling opportunities are sought at other types of facilities. Current projects include State Parks, Rest Areas and Welcome Centers, as well as schools and universities including the Tennessee School for the Deaf, Tennessee Technological University, and the University of Tennessee at Martin. Assistance includes locating local partners and vendors to service the programs, technical assistance, and infrastructure support.

### **Waste Reduction and Recycling Education**

For FY 2010-11 the Office of Environmental Assistance provided waste reduction and recycling education after the University of Tennessee opted to discontinue the Tennessee Solid Waste Education Project contract. Strong work continued to help Tennessee students, teachers and local officials understand issues about solid waste management, source reduction, recycling, natural resource conservation, and environmental protection.

Curricula was presented to educators at numerous forums during FY 2010-11 including Economic and Community Development Energy Workshops, Tennessee Environmental Education Association Annual Conference, Tennessee Science Teachers Association Conference, Pollution Prevention Partnership Conference, Project Learning Tree In-Services, and several university sponsored teacher in-services. Additionally, OEA hosted a special educator workshop at the Tennessee Environmental Conference. In addition to presentations made to teachers, the compendium of lesson plans and teacher manuals was updated. The modernized lesson plans now reflect Tennessee specific learning expectations, feature suggestions for incorporating new media, and utilize recent data regarding burgeoning commodities like e-scrap as well as disposal and recycling volumes.

Direct outreach to students was provided through university presentations and participation in conservation camps. Further outreach was directed to business and industry, higher education, and the general public. Specific outreach efforts include presentations at eleven Workforce Employer Outreach Committee meetings, informational booth at the Physical Plant Administrators conference, WasteWise partner recruitment. Special events promoting waste reduction and recycling include Earth Day and America Recycles Day.

## **School Chemical Cleanout Campaign**

The Office of Environmental Assistance's (OEA) School Chemical Cleanout Campaign (SC3) is a cooperative effort between the Tennessee Department of Environment and Conservation (TDEC) and Department of Education. It has received support from the Tennessee Organization of School Superintendents, Tennessee Science Teachers Association, and Tennessee Academy of Science. Major grant funding came from the US Environmental Protection Agency Programs of Pollution Prevention and Solid Waste Management.

The primary goals are:

- To inventory and remove potentially dangerous legacy chemicals from schools.
- To conduct follow-up educational workshops for teachers on safe chemical management, lab safety regulations, and chemical waste disposal.
- To avoid future needs for a disposal program by encouraging Green Chemistry that uses less hazardous materials and Microchemistry in Tennessee K-12 schools.

The program has produced very successful results. By coordinating school cleanouts with TDEC's mobile Household Hazardous Waste (HHW) event collections, disposal costs have been minimized. Schools submit an inventory or photos of unwanted chemicals, and then OEA and the HHW contractor segregate, pack and ship for proper disposal. The majority of the waste is incinerated in a hazardous waste incinerator. All mercury is recycled into new uses.

During FY 2010-11, 5 schools, which entailed 17,084 students and teachers, removed 6,652 pounds of legacy chemicals including 197 pounds of mercury and an estimated 1,996 pounds of formaldehyde.

Since its inception, The SC3 program has removed chemicals from 186 schools improving the health and safety of 180,710 students and 13,158 teachers. The Tennessee SC3 program has removed a total of 64,121 pounds of waste, including 1,479 pounds of mercury and an estimated 9,231 pounds of formaldehyde.

## **TECHNICAL ASSISTANCE PROGRAMS**

### **Development Districts**

The Development Districts were established to assist local governments with planning and development services while also serving as a forum for local governments to solve common problems associated with economic development, environmental planning and community growth. The Districts assist local governments plan for the future by coordinating the establishment of regional and local priorities. In 1966, the Tennessee General Assembly passed legislation establishing the Development district network across Tennessee. There are 9 Development Districts serving all of Tennessee's 95 counties.

Since the Solid Waste Management Act of 1991 was passed by the Tennessee General Assembly, Development Districts have been providing technical assistance to local governments across Tennessee through an annual grant from the Department of Environment and Conservation. T.C.A 68-211-822 and 823 directs Development Districts to maintain district needs assessments, assist counties and regions within each District to develop, maintain and revise regional solid waste management plans and provide assistance to counties within each District.

In FY 2010-2011, Development Districts assisted local governments with solid waste management issues covering a wide-range of issues. During the past year, Development Districts have been focused on two core functions required by the Solid Waste Management Act. These activities include assisting Solid Waste Planning Regions and local governments with the preparation, development and submittal of the Municipal Solid Waste Planning Regions' Annual Progress Reports (APR). These Reports are due in March of each year as mandated by the Solid Waste Management Act. In addition to preparing and submitting APR's, Development Districts also provided assistance to many of the State's Regional Solid Waste Planning Boards. The second core function of Development Districts is to maintain regional solid waste plans and research and complete District Solid Waste Needs Assessments updates as required every 5 years by the Tennessee Solid Waste Management Act. Development District's completed 22 District Needs Assessments during the past year.

Other solid waste management activities the Districts have been involved with include:

- Continued to assist Regional Solid Waste Planning Boards, representing 32 counties, with on-going activities.
- Provided technical assistance to local governments on solid waste education, reduction, and recycling initiatives.
- Participated in activities of several partner organizations including Keep America Beautiful affiliates, Tennessee Recycling Coalition, Tennessee Solid Waste Directors Association and Recycling Marketing Cooperative for Tennessee.

- Conducted recycling surveys of public and private recyclers throughout the State.
- Assisted local governments with the preparation and administration of 9 Recycling Equipment Grants.

### **Recycling Marketing Cooperative for Tennessee**

The Recycling Marketing Cooperative of Tennessee (RMCT) is a nonprofit organization formed in 1993 in response to the Solid Waste Management Act to market Tennessee's recyclables. As the only statewide cooperative in Tennessee, RMCT's contract with TDEC benefits the Department by fulfilling the responsibilities of the Office of Cooperative Marketing under TCA 68-211-826..

During FY 2010-11, RMCT marketed 4,877 tons of recyclable materials and collected over \$712,207 for local programs. Based on an average landfill fee of \$37 per ton, RMCT's marketing diverted recyclables from landfills and saved local solid waste programs over \$207,296. RMCT also provided technical assistance, site visits, and marketing to 38 counties, 15 cities, and 8 businesses across Tennessee.

RMCT has a heavily populated, historic database of marketing information detailing material amounts, types, locations, and the revenue received from sale of recyclables. They have identified smaller county and municipal programs that collect smaller volumes of materials that are not processed. This material currently is either being donated or sent directly to landfills.

RMCT assists counties and municipalities in educating residents on what and how to recycle, where to find their county drop-off containers, and how their individual efforts can benefit their county's environmental and economic health. Participating counties and municipalities agree to promote recycling efforts through traditional and electronic media outlets and other local promotional opportunities. RMCT educates clients in managing and marketing their own materials. RMCT's marketing system continues to bring in the highest revenues for clients. Vendors know they are receiving quality materials and bids reflect that confidence. RMCT's vendors are verified recycling businesses whose performance history is tracked. Through this system, RMCT is able to suspend delinquent vendors in a timely manner in order to maintain high quality service to our clients. RMCT is launching the first online recycling marketing tool. This online marketplace will allow local governments to market their own materials through a convenient auction tool. RMCT's Web site is linked to useful recycling resources to further educate Tennessee's recycling consumers.

### **University of Tennessee-Center for Industrial Services**

TDEC contracts with the University of Tennessee, Center for Industrial Services (CIS) to provide Tennessee industries with technical assistance on waste identification and reduction. CIS also provides training, workshops, and assistance related to waste minimization, waste

management planning, and reduction. The Tennessee Materials Exchange (TME) and the Recycling Markets Directory (RMD) are two websites maintained by CIS to assist Tennessee industries and businesses reduce solid waste.

TME is a free service assisting industry to find markets for excess materials, by-products, and waste products that may be utilized by other industries as inputs to their industrial process. It promotes beneficial use of material resources, especially those considered wastes and that would otherwise be destined for disposal. TME lists materials available and materials needed and creates the initial contact between two parties with similar interests. The TME listings are updated monthly on their website.

The RMD is an Internet based database of companies that actively recycle materials generated in Tennessee (companies with expansion plans are not listed until in-state facilities are operational). The website is searchable by company name, by company location, or by types of material handled. The database is constantly evolving and is regularly updated.

For FY 2010-11, the database received 3,683 visits from industrial/commercial entities and other interested parties to identify recycling markets. The database is used more frequently by Tennessee-based entities (63 percent of total inquiries). The RMD is frequently used by recycling entities in other states to include: Texas, North Carolina, Georgia, California, New York, Kentucky, Alabama, South Carolina, and Arizona.

The State of Tennessee continues to be an important source of visits to the RMD. Approximately 16% or 464 inquiries) came from three sites in the State of Tennessee internet domain during FY2010-11.

### **The University of Tennessee-County Technical Assistance Service**

TDEC contracts with the University of Tennessee, County Technical Assistance Service (CTAS) to provide solid waste technical assistance to local governments. CTAS advises these authorities on up-grading and maintaining their solid waste collection systems, including convenience centers, transfer stations, and systems used in waste reduction, recycling, and disposal. CTAS also develops and offers courses, workshops, and continuing education on solid waste management best practices, source reduction, and recycling.

During FY 2010-11, CTAS had over 700 requests from counties, municipalities, solid waste authorities and regions. Significant projects for this year included assisting Dickson County pass a solid waste fee to make the County solid waste program self-supporting. CTAS also taught classes in Landfill Economics, Landfill Closure/Post Closure, and Erosion Control at the TDEC Landfill Operator's Recertification Training. CTAS assisted Sevier County Solid Waste



Authority in developing and implementing measures for requiring ‘flow control’, thus assuring the waste stream generated locally would be taken to the local compost facility operated by the solid waste authority. CTAS also offered a pilot safety program for Sevier County Solid Waste Authority. The pilot is a result of a partnership with Center for Industrial Services (CIS) and will increase safety practices at publicly operated solid waste facilities in Tennessee.

CTAS continues to develop the Solid Waste Professionals Certification Program (SWPCP), by partnering with the Solid Waste Association of North America (SWANA) to offer certification courses in Solid Waste Management. The Solid Waste certification program was started in 2009 and has 33 currently enrolled students from over 25 local governments. The first class graduated in September of 2010 after completing and passing exams for two SWANA certifications, in addition to leadership and management courses offered by the University of Tennessee. The SWPCP program is geared toward solid waste directors and public works directors, and will also benefit recycling coordinators and front line solid waste management staff. The SWPCP program provides collaborative opportunities for solid waste officials throughout Tennessee.

With most counties experiencing fiscal shortfalls, CTAS has had increased requests for assistance with budgeting and operational efficiencies. CTAS evaluates system operations, writes requests for proposals, and helps with fee structuring and grant writing. CTAS recently assisted counties in restructuring waste tire programs to obtain the maximum tire recycling refunds under new grant program. CTAS continues to publish an environmental blog, covering solid waste, public works, energy, and broader environmental topics relevant to Tennessee local governments.

The CTAS consultants provide valuable technical assistance in the design and operation of the local solid wastes systems. They also provide legal and in house research procedural handbooks, personnel handbooks, specifications for equipment and service contracts, and resolutions and ordinances that assist local governments in properly incorporating solid waste activities into their local laws and community operations.

## **PROBLEM WASTE MANAGEMENT**

### **Household Hazardous Waste**

The Household Hazardous Waste (HHW) Program provides mobile collection service to counties for solid wastes in the home that exhibit the characteristics of being ignitable, corrosive, reactive, or toxic. The potential for ground and surface water contamination, damage to solid waste and wastewater treatment operations, and injury to sanitation workers exists if these materials remain in the municipal waste stream. Ninety-four counties have participated in the HHW mobile collection service since the program's inception in 1993. SWM continues to

provide up to four events each Saturday from mid-March through mid-November. In the Fall 2010, a competitively bid contract for Household Hazardous Waste and Conditionally Exempt Small Quantity Generator Collection Service was awarded to Clean Harbors Environmental Services, Inc. However, due to circumstances beyond our control, delays in the contract approval prohibited us from conducting a fall collection season. The contract expires June 30, 2015.

The State HHW Program requires local governments to provide regular collection of batteries, oil, paint, antifreeze, and electronics (BOPAE) to be considered for HHW service. Recycling markets for these materials are well developed and available to local governments, thereby eliminating the need for collection by a state sponsored hazardous waste contractor. The State however continues to fund the disposal costs for solvent based paint collected by the local governments. Solvent based paint disposal service is provided upon request to the HHW Coordinator in milk run pick-ups.

In FY 2010-11, the State provided 19 mobile HHW events and 12 milk run pickups for pre-collected solvent based paint and mercury containing lamps. The service was utilized by over 2700 households and disposed of 136,910 pounds of household hazardous waste and oil based paint. The total cost for the 19 rural county sweeps and 12 milk run pickups was \$182,460.30. Appendix A presents data for the FY 2010-11 HHW collection service.

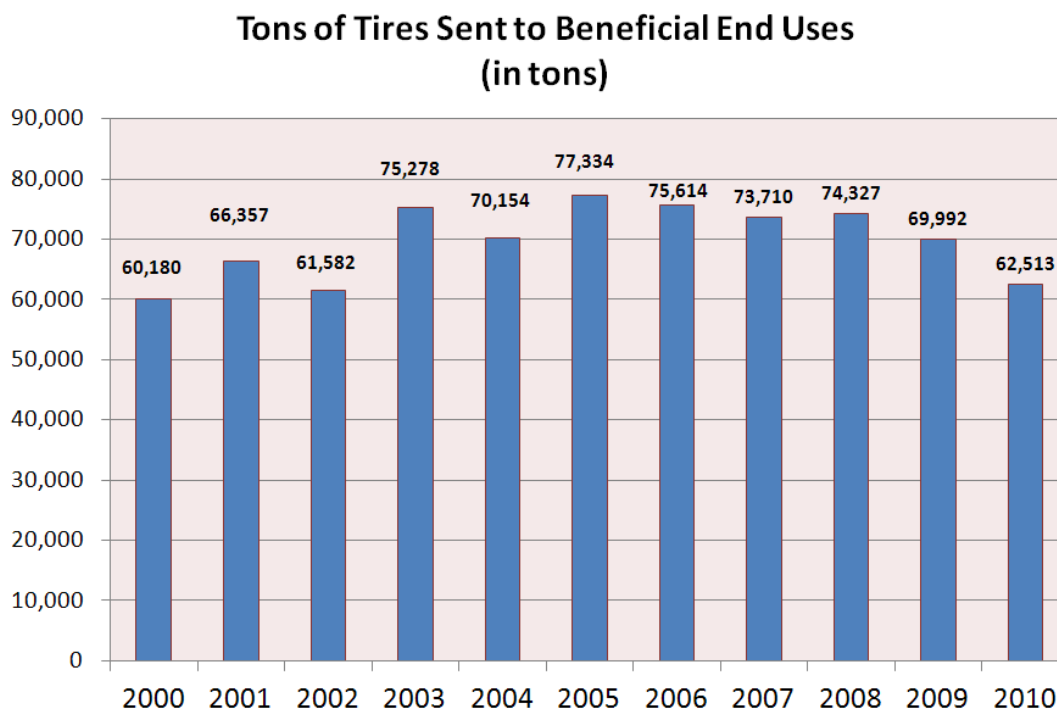
Chattanooga, Knoxville, Nashville, and Shelby County manage permanent HHW collection facilities and are not included in these calculations. These facilities were constructed with grants from the Solid Waste Management Fund, as provided in the SWMA [TCA §68-21-828].

### **Waste Tire Recycling**

The Act was amended in 1999 to prohibit counties from placing shredded tires in landfills after July 1, 2002, if the net cost of shredding, transporting, and disposing of waste tires exceeded the cost of an available beneficial end use. Beneficial end uses for scrap tires include cement manufacturing, tire-derived fuel (TDF), and civil engineering applications. The last year that statewide tire shredding service was provided was FY 2001-02. All 95 Tennessee counties now send their tires to beneficial end users and grants are available to assist the counties in this effort. In FY 2010-2011, Tennessee counties recycled a total of 69,992 tons of tires with 49,918 of those tons recycled aided with state grant dollars.

TDEC maintains a list of unpermitted waste tire disposal sites, which is prioritized to identify those sites that may pose a threat to human health. For instance, rainwater trapped in tires can become a breeding area for mosquitoes. The potential presence of West Nile virus within proximity of the public is of great concern at the unpermitted waste tire sites. The Waste Tire Cleanup Grant was developed to assist counties with clean up and remediation of unpermitted waste tire disposal sites. Counties are solicited to utilize these grant funds to clean up legacy or historical unpermitted waste tire sites and are authorized by these grants to contract with third

parties to clean up the tire site and receive reimbursement for one hundred percent of eligible costs.



Source: TDEC Municipal Solid Waste Planning Regions' Annual Progress Reports 2000-2010

### **Assistance Grants**

Financial assistance has been provided for solid waste initiatives to Tennessee's local governments and non-profits since 1992. During this period, some 3,350 grants totaling over \$100 million dollars have been awarded for various projects ranging from key pieces of recycling equipment purchases to large facility improvements like the building of material recovery facilities (MRFs), installation of truck scales, and construction of convenience centers. The Fund provides the monies for these grants.

Solid waste grants have assisted Tennessee's 68 municipal solid waste planning regions in building much needed infrastructure. A decade ago, green boxes (unmanned county waste receptacles) dotted our back roads with anything and everything being tossed in and around these containers. Today, 93 of our 95 counties have a minimum of one convenience center, which is monitored and fenced. These centers provide drop off points for MSW, as well as assorted recyclables. The vast majority of Tennesseans can now enjoy having an integrated solid waste system to manage their local MSW as a result of these solid waste grants.

The grant program also provides grants to the State's development districts, the University of Tennessee's CTAS and CIA and Recycling Marketing Cooperative for Tennessee (RMCT) to provide technical assistance to the local governments.

### **Recycling Equipment Grants**

An excellent way for local governments and non-profit organizations to purchase key pieces of recycling equipment is the recycling equipment grant. Traditionally, items purchased under this grant include: roll off containers, skid loaders, paper shredders, scales, balers, glass crushers, and assorted styles of collection containers. This is a competitive grant with a maximum award of \$25,000. A matching share of 10%-50% is required and is determined using an economic index. In FY 2010-11, eight counties and one city received recycling grants totaling \$199,315 as outlined in Appendix B. Counties and municipalities eligible for the recycling rebate are not eligible for this grant offering.

### **Recycling Rebates**

Each year the top eleven county generators of MSW are offered recycling rebates which may be used for any recycling purpose including establishing, maintaining or expanding recycling operations and systems or providing education for local recycling programs. Municipalities within these counties are offered a proportional share of the rebate for their programs. The municipalities may allow their portion to be deferred to the county. There is a one to one matching of funds for this rebate. Awards for FY 2010-11 totaling \$300,000 are detailed in Appendix C.

### **Waste Tire Recycling Grants**

Grants to counties to assist with the collection and recycling of their waste tires are provided by SWM and these awards are detailed in Appendix D.

TDEC initiated the Waste Tire Recycling Grant Program in June of 1995 to assist counties in locating, collecting, and properly disposing waste tires with beneficial end use being the ultimate goal. Grants are awarded based on total annual payments to the Department of Revenue by the county's tire dealers. Each county's reimbursement is paid on its eligible tire generation at a rate of \$70.00 per ton or \$1.00 per tire at the county's discretion.

In FY 2010-11, TDEC gave 88 counties grants for the location, collection, and approved beneficial end-use of tires. Two of these counties grants were for multi-county tire hubs. TDEC reimbursed counties \$3,494,246.79 through the Waste Tire Grant Program. The participating

grantees collected 49,918 tons or 4,340,696 passenger tire equivalents and processed them to beneficial end use.

### **Waste Tire Cleanup**

The Unpermitted Waste Tire Site cleanup grant is designed to assist local governments to clean up unpermitted waste tire sites resulting from historical dumping of tires. Eligibility for this grant is determined on a priority basis. This grant does not require a matching share from the county. Grants are awarded to counties to contract for services to mitigate unpermitted waste tire sites, and provide for equipment rentals, labor needs, access to site and other activities related to the mitigation.

In FY 2010-11, no Waste Tire Site cleanup grants were issued; however, 32 counties utilized approximately \$11,111 from the waste tire recycling grant program to clean up 159 tons of tires.

### **Operation and Maintenance Grants for Permanent HHW Collection Facility**

Chattanooga, Knoxville, Nashville, and Shelby County each have one permanent household hazardous waste collection site. These facilities accept household hazardous wastes, such as cleaning chemicals and pesticides, for safe disposal. TDEC provided initial grants for construction and start-up of these facilities at these sites during previous years. A yearly maintenance grant is paid to the counties to cover a portion of their ongoing operational costs. These four facilities received a total of \$340,000 during FY 2010-11.

### **Development Districts**

The Department contracts with development districts each year to provide technical assistance for solid waste planning. The districts prepare and submit work plans that outline technical assistance for the regions in their district. In FY 2010-11, eight development districts received \$286,804.78 to provide quality technical assistance services. This is a non-matching grant.

### **University of Tennessee County Technical Assistance Service (CTAS)**

Under the University of Tennessee's Institute for Public Service, the County Technical Assistance Service received a non-competitive grant for \$354,729.84 to provide technical assistance to local governments. Activities funded by this grant directly provide for assistance to local governments in designing facility layout, determining appropriate equipment specifications, best management practices development, GIS mapping and route design to name a few. Additional value added services from CTAS also includes legal assistance in solid waste matters, research assistance on solid waste topics and technical support at public meetings. This grant currently supports a technical blog for solid waste professionals in local governments in Tennessee and offers a valuable resource for other professionals across the country.

### **University of Tennessee Center for Industrial Service (CIS)**

The University of Tennessee's Institute for Public Service, Center for Industrial Service grant is a yearly non-competitive grant. In FY 2010-11, CIS received a grant for \$136,231 for technical assistance to the business and industry sector. This grant provides funding for the operation of the Tennessee Materials Exchange. The Tennessee Materials Exchange promotes the beneficial use of material resources, especially those considered to be wastes destined for disposal. Tennessee businesses can use this service to find markets for industrial by-products, surplus materials and wastes. Material that one company classifies as waste may be raw material to another. The Tennessee Materials Exchange lists potentially useful materials, available and wanted, and serves as a matchmaker between those who have materials and those who want them.

CIS also hosts the online Recycling Markets Directory. The Recycling Markets Directory is a database that contains information about companies that purchase recyclable materials. CIS also provides technical assistance services and projects to benefit business and industry and make them more competitive by reducing waste generation.

Appendix A: Mobile Household Hazardous Collection Summaries Fiscal Year 2010-11

County	Date	Participation (#HH)	Cost	Total Weight (lbs)
Anderson - Milk Run	7 /28/2010		\$3,760.36	2,704
Anderson	4 /9 /2011	304	\$11,207.99	4,851
Clay	6 /4 /2011	5	\$1,712.43	243
Coffee	4 /16/2011	102	\$7,947.12	2,831
Dyer	5 /21/2011	74	\$4,252.92	1,857
Franklin	4 /30/2011	197	\$8,138.07	6,518
Hamblen	4 /2 /2011	220	\$7,917.46	7,457
Henry	5 /14/2011	76	\$6,581.93	2,112
Lincoln	5 /14/2011	67	\$6,809.96	2,455
Loudon - Milk Run	3 /30/2011		\$190.24	892
Loudon	4 /2 /2011	146	\$8,010.07	2,371
Montgomery	4 /9 /2011	340	\$15,441.63	7,474
Montgomery - Milk Run	6 /23/2011		\$767.04	3,248
Obion	5 /21/2011	61	\$4,263.86	2,131
Roane - Milk Run	7 /27/2010		\$1,240.61	na
Roane	5 /21/2011	104	\$9,050.35	9,203
Robertson - Milk Run	7 /26/2010		\$988.43	2,636
Robertson - Milk Run	4 /20/2011		\$1,041.54	4,398
Robertson	5 /14/2011	18	\$4,214.29	1,672
Sevier	4 /9 /2011	310	\$13,270.21	12,641
Smith - Milk Run	7 /30/2010		\$1,098.15	2,387
Smith	5 /7 /2011	8	\$1,720.06	206
Sullivan - Milk Run	7 /27/2010		\$4,662.24	6,383
Sullivan	5 /14/2011	142	\$11,175.15	6,670
Tipton	6 /4 /2011	161	\$6,228.17	4,057
Washington - Milk Run	7 /27/2010		\$374.91	690
Washington	5 /7 /2011	76	\$10,699.76	3,359
Williamson - Milk Run	7 /30/2010		\$3,891.78	4,451
Williamson - Milk Run	2 /3 /2011		\$1,947.39	8,293
Williamson	5 /7 /2011	315	\$20,724.73	9,105
Williamson - Milk Run	6 /27/2011		\$3,131.45	13,615
<b>Total/Average</b>		<b>2,726</b>	<b>\$182,460.30</b>	<b>136,910</b>

Appendix B: Recycling Equipment Grant Awards Fiscal Year 2010-11
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City of LaFollette	\$ 22,378.00
Clay County	\$ 22,140.00
Goodwill Industries (Cocke)	\$ 24,112.00
Fentress County	\$ 19,180.00
Goodwill Industries (Grainger)	\$ 25,000.00
Hardeman County	\$ 25,000.00
Haywood County	\$ 15,328.00
Goodwill Industries (Union)	\$ 21,177.00
White County	\$ 25,000.00
Total	\$ 199,315.00



**Appendix C: Rebate Awards Fiscal Year 2010-11**

DAVIDSON COUNTY /Nashville	\$42,828	RUTHERFORD	\$8,695
BELLE MEADE	\$243	MURFREESBORO	\$6,025
GOODLETTSVILLE	\$797		
		SHELBY	\$11,477
HAMILTON	\$9,018	BARLETT City of	\$5,763
CHATTANOOGA	\$12,275	COLLIERVILLE	\$4,753
COLLEGEDALE	\$587	GERMANTOWN	\$4,928
EASTRIDGE	\$1,432	LAKELAND	\$975
RED BANK	\$843	MEMPHIS	\$81,129
		MILLINGTON	\$1,310
KNOX	\$21,304		
KNOXVILLE	\$15,735	SULLIVAN	\$6,645
		BRISTOL City of	\$1,970
LOUDON	\$9,512	KINGSPORT *	\$3,178
MADISON	\$4,560	Sumner	\$0
JACKSON City of	\$8,654	GALLATIN	\$13,371
		GOODLETTSVILLE *	\$502
MONTGOMERY	\$10,083		
		WILLIAMSON	\$7,496
		FRANKLIN, City of	\$3,912
		TOTALS	\$300,000

Appendix D: Waste Tire Recycling Grant Awards Fiscal Year 2010-11

Anderson	\$54,000.00	Lake	\$1,800.00
Bedford	\$28,400.00	Lauderdale	\$12,000.00
Benton	\$12,000.00	Lawrence	\$40,200.00
Bledsoe	\$2,300.00	Lewis	\$6,000.00
Blount	\$85,000.00	Lincoln	\$25,100.00
Bradley	\$65,000.00	Loudon	\$29,000.00
Campbell	\$20,100.00	Macon Co	\$20,500.00
Cannon	\$2,900.00	Madison Co	\$147,000.00
Carroll	\$20,500.00	Marion	\$24,000.00
Cheatham	\$13,600.00	Marshall	\$19,600.00
Chester	\$5,800.00	Maury Co	\$57,500.00
Claiborne	\$12,100.00	Mcminn	\$33,200.00
Clay	\$850.00	Mcnairy	\$9,500.00
Cocke	\$23,900.00	Meigs Declined	\$850.00
Coffee	\$41,500.00	Metro Lynchburg / Moore	\$1,400.00
Crockett	\$6,500.00	Monroe	\$21,200.00
Cumberland	\$46,300.00	Montgomery Hub / Stewart	\$117,350.00
Davidson / Metro Nashville	\$595,000.00	Morgan	\$4,400.00
Decatur	\$5,200.00	Obion	\$28,500.00
Dekalb	\$10,500.00	Overton	\$11,800.00
Dickson	\$50,500.00	Perry	\$2,600.00
Dyer	\$30,100.00	Pickett	\$1,400.00
Fayette Co	\$10,600.00	Polk Co	\$8,700.00
Fentress Co	\$15,300.00	Putnam	\$72,500.00
Franklin	\$22,600.00	Rhea	\$15,400.00
Gibson	\$44,000.00	Roane	\$37,800.00
Giles	\$14,600.00	Robertson	\$39,200.00
Grainger	\$6,300.00	Rutherford	\$208,344.00
Greene	\$51,356.00	Scott	\$5,400.00
Grundy	\$1,900.00	Sequatchie	\$10,200.00
Hamblen	\$58,400.00	Sevier (Solid Waste, Inc.)	\$63,300.00
Hamilton	\$316,000.00	Shelby	\$506,500.00
Hancock	\$2,100.00	Smith	\$8,000.00
Hardeman	\$12,200.00	Sumner (Resource Authority)	\$73,000.00
Hardin Co	\$17,595.00	Tipton	\$30,000.00
Hawkins	\$19,900.00	Trousdale	\$6,100.00
Haywood	\$11,900.00	Union	\$6,500.00
Henderson	\$21,400.00	Van Buren	\$625.00
Henry	\$33,600.00	Warren	\$30,100.00
Hickman	\$9,940.00	Washington Hub Sullivan, Johnson, Unicoi, Carter, Greene	\$246,644.00
Houston	\$3,350.00	Wayne	\$5,500.00
Humphreys	\$11,400.00	Weakley	\$19,900.00
Jackson	\$4,000.00	White	\$19,200.00
Jefferson	\$14,600.00	Williamson	\$150,000.00
Knox	\$378,500.00	Wilson	\$51,000.00

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